

ROYAL BOTANIC GARDENS, KEW.

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BULLETIN

OF

MISCELLANEOUS INFORMATION.

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XXX.—FIQUE.

*FURCRAEA GIGANTEA.*

(With Plate.)

We have recently received from MR. M. T. DAWE, Director of Agriculture, Colombia, some interesting samples of Fique fibre and articles made therefrom which have been placed in Museum No. II.

In addition Mr. Dawe sent some photographs, two of which are here reproduced, one showing the method of drying the fibre and the other of the green leaves being used as thatch for a house. A sample of the fibre, which is usually known as Mauritius Hemp, has been sent to a firm of Brokers in London and was valued on April 19th at £40 per ton.

The accompanying note was sent to Kew by Mr. Dawe with the specimens and photographs.

"There are probably few vegetable products, the subject of domestic industry, particularly in the fibre world, which have so wide an application in everyday use as Fique in Colombia.

"Fique is the fibre of *Furcraea gigantea*, and is grown everywhere in the sub-tropical parts of Colombia, but especially in the districts of limestone formation, where the spiny form is found in a wild condition growing abundantly on the hills.

"In travelling through Colombia one notices everywhere the great variety of application to which this fibre is put. The Alpargatas or shoes worn by the masses in this part of South America are soled with Fique, and it is evident that the consumption of fibre for this purpose alone must be enormous. Sacks or Costales for the collection of coffee on the plantations are made of Fique. Sacks for the local transport of charcoal, maize and produce generally are of Fique. The pack-saddles and girths for transport mules and bullocks, ropes and cords are likewise of Fique. Matting resembling cocoanut fibre is also manufactured locally from dyed Fique, and is becoming an increasingly important industry consuming large quantities of the fibre. In the towns marketing is generally done with Mochilas or little bags made of coloured Fique; even the banks use little bags of the same fibre for the convenience of their customers for the conveyance of cash, in substitution for paper or linen bags generally used in other countries. Perhaps, how-

ever, one of the most novel uses of Fique to be seen in Colombia is the employment of the green leaves for thatching purposes as shown in the accompanying photograph (see Plate VII., fig. 1). A specimen of the plant which forms the source of this fibre will be noted in the picture on the left.

"The annual consumption of fibre for the industrial purposes above-mentioned must be very considerable, but notwithstanding this, the cultivation and preparation of the fibre is principally a domestic industry. There are a few persons who are now giving attention to the preparation of fibre articles and material by machinery, but up to the present only in a small way.

"In the temperate parts the peasantry generally possess a few plants of Fique, sometimes planted to form a fence to their garden or homestead, in other cases a patch of land useless for other purposes. The fibre they extract by pulling strips of the leaves through a knife arrangement fixed on a tree. One man generally shreds the leaves while another extracts the fibre. By this method two men prepare on the average about ten pounds of dry fibre in a day, which costs in value of labour alone 7 centavos or  $3\frac{1}{2}$ d. per lb. The fibre is sold in the Bogotá market for 10 to 12 centavos (5d. to 6d.) per lb., a much higher price than the fibre realises in the markets of the United States or Europe. In one municipality of some 7250 inhabitants, the approximate amount of fibre prepared annually by this laborious and unremunerative method is said to be about 100,000 lbs. This means to say, on the basis of 5 lbs. of dry fibre being the output of one man in a day, that this production represents 20,000 days of labour; which, valued at the local rate of 35 centavos per day, is equal to a money value of \$7000 gold.

"These figures if only approximately correct serve to indicate the local possibilities which lie in the organisation and development of this industry on modern lines, by the employment of suitable machinery. There are few countries where Fique grows so well and lives so long as in Colombia; and the better organisation of the industry locally, which would doubtless result in sound and profitable commercial developments, would, at the same time, release a considerable supply of labour that may be much more profitably utilised."

The following additional information has been extracted from an article in Spanish by Mr. Dawe, published in *El Diario Nacional*, Bogotá, for the 8th of March, 1916:—

"Using modern machinery, the cost of production of the fibre and freight to Bogotá or other centre in Colombia would amount to \$65 per ton, yielding a profit of \$95 (£19) per ton, if sold at the present local wholesale price of \$160 per ton. The profits on export would be considerably lower, but any surplus after meeting the home demand could be exported to New York at a total cost, including production, of about \$95 per ton. This would yield a profit of about £5 to £10 per ton, taking the selling price at £25-£30 per ton."

#### EXPLANATION OF PLATE VII.

Fig. 1. A house thatched with the green leaves of *Furcraea gigantea*.

Fig. 2. The fibre hung out to dry.



## XXXI.—NOTES ON AFRICAN COMPOSITAE: II.

J. HUTCHINSON.

**Brachymeris, DC., and Marasmodes, DC.**

The genus *Brachymeris*, DC.,\* was reduced to *Marasmodes*, DC.,† by Bentham in the *Genera Plantarum*, and this treatment was followed by Hoffmann in Engler's *Natürliche Pflanzenfamilien*; but the two genera seem sufficiently distinct to be kept apart. The difference lies chiefly in the pappus. In *Marasmodes* it consists of about eight well-developed, hyaline, flat, membranous scales about half as long as the corolla-tube; in *Brachymeris* there is no pappus or at most a mere undulation of the top of the achene between the ribs or angles. As the structure of the pappus in *Compositæ* is perhaps one of the most important features in the consideration of the phylogeny and affinities of the genera of this interesting family, there seems some justification for following DeCandolle's views in the case of the two genera mentioned. Moreover, there is another difference, which, though not usually of generic value, is sufficiently important as an associated character; the leaves of *Marasmodes* are densely glandular-pitted, a feature not shared by *Brachymeris*. The differential characters of *Marasmodes*, *Brachymeris*, and *Stilpnophytum*, Less., a closely allied genus, are shown in the following:—

**Marasmodes, DC.**—Capitula solitaria vel pauca; achaenia omnia fertilia; pappi squamae bene evolutae, circiter 8, planae, membranaceae; folia glanduloso-punctata.

**Brachymeris, DC.**—Capitula solitaria vel pauca; achaenia omnia fertilia; pappus nullus; folia epunctata.

**Stilpnophytum, Less.**—Capitula plerumque umbellato-corymbosa; achaenia interiora tenua, vacua, exteriora crassiora, fertilia; pappus nullus; folia epunctata.

**Marasmodes, DC.**—*Clavis specierum.*

Folia patentia; capitula multiflora, solitaria vel pauca:—

Folia remota:—

Folia circiter 1·5 cm. longa, apice callo obtuso mucronata; capitula sessilia ... 1. *M. polycephalus*.

Folia usque ad 0·8 cm. longa, apice mucrone obliquo acuto instructa... 2. *M. oligocephalus*.

Folia fasciculata, circiter 0·5 cm. longa ... 3. *M. Adenosolen*.

Folia ad ramulos adpressa, 0·3–0·5 cm. longa; capitula 4–5-flora, subglomerata ... 4. *M. Dummeri*.

\* DC. Prodr. vi. 76 (1837).

† DC. Lc. 136.

1. **M. polycephalus**, DC. Prodr. vi. 136 (1837); Harv. in Harv. et Sond. Fl. Cap. iii. 175. *Oligodorella teretifolia*, Turcz. in Bull. Soc. Nat. Mosc. xxiv. i. 187 (1851).

SOUTH AFRICA.—South-Western Region: Stellenbosch, Zeyher 808 (Harv. l.c. quotes Ecklon). “Cape,” Ecklon 1333 (not seen).

2. **M. oligocephalus**, DC. Prodr. vi. 136 (1837). *M. polycephalus*, var. *oligocephalus*, Harv. in Harv. et Sond. Fl. Cap. iii. 175.

SOUTH AFRICA.—South-Western Region: Malmesbury; Groenekloof, Ecklon (fide Sonder l.c.); Leliefontein, near Hopefield, Mar., Bachmann in Herb. Bolus 5969.

I have not seen the type of this species which is in Herb. Sonder, but I have little doubt from description and the distribution that the Bolus specimen is the same.

3. **M. Adenosolen**, Harv. in Harv. et Sond., Fl. Cap. iii. 175 (1865).

SOUTH AFRICA.—South Western Region: Piquetberg; 100 m. alt., June, Schlechter, 7899; “Cape,” Ecklon and Zeyher (Herb. Sonder).

The type of this has not been seen, but as Schlechter's specimen was distributed under the above name, there seems no reason on comparing the description to doubt the determination.

4. **M. Dummeri**, Bolus mss., ex Hutchinson.

*Suffrutex* 1·5–3 dm. altus; rami graciles, subteretes, glabri, internodiis circiter 0·5 cm. longis; ramuli recti, elongati, usque ad 7 cm. longi, glabri. *Folia* ad ramulos arcte adpressa, ericoidea, obtusa, basi minute et obtusissime hastata, 3–5 mm. longa, basi 1–1·5 mm. lata, crassa, supra canaliculato-concava, infra convexa, glandulis immersis nigrescentibus punctata. *Capitula* ramulorum apices versus glomerata, subsessilia, 4–5-flora, 4·5 mm. longa. *Involucri* bracteae paucae, 3–4 seriatæ, ab extremo abrupte longiores, interiores lineari-oblancoolatae, obtusae, usque ad 4 mm. longae, tenuiter paleaceae, glabrae. *Corollae* tubus 1·75 mm. longus, inferne cylindricus, superne campanulato-ampliat, extra glandulosus; lobi 5, oblongo-lanceolati, obtusi, 1 mm. longi, glabri. *Antherae* exsertae, 1 mm. longae. *Styli* rami breves, exserti, truncati, 0·5 mm. longi. *Achaenia* 1·5 mm. longa, glandulis immersis instructa. *Pappi* squamae 0·3 mm. longae, hyalinae, oblongae, obtusae.

SOUTH AFRICA.—South-Western Region: Cap. div.; grassy plains around Kraaifontein, June, Dummer 1549.

**Brachymeris**, DC.—*Clavis specierum*.

Rami apice spinescentes; folia internodiis aequilonga vel breviora; capitula subsessilia ... .. 1. *B. scoparia*.

Rami apice haud spinescentes:—

Folia glabra vel fere glabra:—

Rami erubescens, parce foliati, foliis internodiis aequilongis vel brevioribus; capitula solitaria vel 3-nata, graciliter et longe pedunculata ... .. 2. *B. erubescens*.

Rami haud erubescens, dense foliati,  
foliis internodiis multo longioribus;  
capitula plerumque numerosa, dense  
glomerato-corymbosa:—

Folia 2 mm. lata; capitula circiter

1 cm. diametro ... 3. *B. athanasioides*.

Folia 1 mm. lata; capitula circiter

0.5 cm. diametro:—

Involucri bractee interiores

apice lanato-pubescentes ... 4. *B. montana*.

Involucri bractee interiores

glabrae ... 5. *B. Bolusii*.

Folia et involucri bractee dense sericeae;

capitula solitaria... 6. *B. Peglerae*.

1. *B. scoparia*, DC. Prodr. vi. 76 (1837); Drège, Zwei Pflanzengeogr. Docum. 55; Harv. in Harv. et Sond. Fl. Cap. iii. 163.  
*Brachystylis scoparia*, E. Mey. ex DC. l.c., nomen.

SOUTH AFRICA.—Karoo Region: Graaff Reinet; Sneeuw Berg Range, 1300–1640 m., Sept., Drège c. Upper Region: Richmond; Winterweld near Limoenfontein and Groot Tafelberg, 1000–1300 m., Dec.-Jan., Drège, A; Klein Tafelberg, Burke & Zeyher, 147.

I have not seen Drège's *b* specimen from the Zeekoe River, Richmond Division (Drège l.c. 54).

## 2. *B. erubescens*, Hutchinson, sp. nov.

*Caules* pauci, e rhizomate lignoso orti, circiter 3 dm. alti, erubescens, apicem versus ramosi, crasse costati, glabri, basi subdense superne remotissime foliati. *Folia* inferiora subulato-linear, acutissima, 1.5–1.7 cm. longa, rigide coriacea, glabra; folia superiora inferioribus multo breviora. *Capitula* solitaria, laxa corymbosa, circiter 0.6 cm. longa,  $\infty$ -flora; pedunculi (vel ramuli) usque ad 10 cm. longi, graciles, glabri. *Involucrum* campanulatum, 0.4 cm. longum; bractee 3-seriatae, exteriores minimae, lanceolatae, subcutae, 1.5–2 cm. longae, glabrae, intermediae oblongo-lanceolatae, 3 mm. longae, submembranaceae, dorso erubescens, margine minute laceratae, interiores subspatulato-oblancheolatae, apice rotundatae, 0.5 cm. longae, glabrae. *Corollae* tubus 2.25 mm. longus, inferne cylindricus, superne anguste campanulato-amplius, extra parce glanduloso-pubescent; lobi 5, lanceolato-triangulares, subobtus, 0.75 mm. longi. *Antherae* semiexsertae, 1.75 mm. longae. *Styli* rami curvati, truncati, 0.75 mm. longi. *Achaenia* apice calva, 10-costata, glabra, 1.75 mm. longa.

SOUTH AFRICA.—Upper Region: Cradock: near Mortimer, 840 m. alt., Jan., L. Kensit in Herb. Bolus 9292.

EASTERN REGION: Tembuland, Tabase, near Bazeia, 800 m. alt., Nov., Baur 334.

## 3. *B. athanasioides*, Hutchinson, comb. nov.

*Pentzia athanasioides*, S. Moore in Journ. Bot. 1903, 133.

SOUTH AFRICA.—Kalahari Region: Transvaal; Jeppe's Town Ridge, Johannesburg, 18–20 m., Sept., Gilfillan in Herb. Galpin



6026; amongst rocks in Orange Grove near Johannesburg, Oct., Conrath 405; rocky places near Hospital Hill, Johannesburg, Rand 758 (type).

4. **B. montana**, *Hutchinson*, sp. nov.

*Frutex* ramosus; rami foliorum basibus persistentibus rugosi, teretes, fere glabri; ramuli hornotini interdum fasciculati, dense foliati, breviter et tenuiter lanati. *Folia* linearia, acuta, 2-3 cm. longa, 1 mm. lata, plana, conspicue 1-nervia, chartacea, glabra. *Capitula* dense glomerato-corymbosa, breviter pedunculata, globoso-campanulata, circiter 0.5 cm. diametro; pedunculi 0.5-1 cm. longi, parce bracteati, lanati. *Involucrum* 0.5 cm. longum; bracteae circiter 4-seriatae, ab extremo sensim longiores, exteriores subulato-lanceolatae, acutae, glabrae, intermediae lanceolatae, acute acuminatae, interiores lineares, acutissimae, hyalinae, circiter 4 mm. longae, apice pubescentes. *Corollae* tubus 2.25 mm. longus, inferne cylindricus extra glandulosus, superne sensim ampliatus; lobi 5, oblongo-lanceolati, obtusi, 0.25 mm. longi. *Antherae* 1.25 mm. longae. *Styli* rami vix exserti, fere 1 mm. longi. *Achaenia* costata, cylindrica, 1 mm. longa, glabra, apice annulo minutissimo coronata.

SOUTH AFRICA.—Kalahari Region: Mt. Marovougne, Apr., Junod 1278 (type); Macalisberg, May, Burke 497. "Cape," Zeyher 1040.

5. **B. Bolusii**, *Hutchinson*, sp. nov.

*Frutex* parvus, superne ramosus; rami foliorum basibus persistentibus rugulosi, teretes, inferne glabri; ramuli hornotini conferti, dense foliati, parce lanato-pubescentes. *Folia* linearia, acuta, 1-1.5 cm. longa, 0.5-1 mm. lata, plana, sicco rugulosa, chartacea, glabra. *Capitula* homogama, subsolitaria, breviter pedunculata, campanulata, circiter 0.5-0.7 mm. diametro; pedunculi circiter 1 cm. longi, lanati, bracteis lineari-subulatis acutis 2.5 mm. longis fere glabris instructi. *Involucrum* 0.5 cm. longum; bracteae 4-5-seriatae, ab extremo sensim longiores, subulato-lanceolatae vel lineares, acutae, usque ad 5 mm. longae, margine minute serrulatae, glabrae. *Flores* ut in *B. montana*, sed achaeniis inter costas minutissime glandulosis.

SOUTH AFRICA.—Eastern Region: Drakensberg; Devil's Kantoor Mt., about 1730 m., Sept., Bolus 7786.

6. **B. Peglerae**, *Hutchinson*, sp. nov.

*Caules* ascendentes, subsimplices vel superne parce ramosi, costati, dense albo-sericei. *Folia* imbricata, ascenduntia, linearia, acuta, 1.3-1.5 cm. longa, 1-1.25 mm. lata, dense cinereo-sericea. *Capitula* solitaria, breviter pedunculata, subturbinato-campanulata, 1 cm. longa. *Involucrum* bracteae dense sericeae, circiter 3-seriatae, exteriores paucae, lineari-lanceolatae, acutae, interiores lineares, subhyalinae, obtusae, 5 mm. longae. *Corollae* tubus 2.5 mm. longus, inferne cylindricus, parce glanduloso-puberulus, superne subito ampliatus; lobi 5, triangulari-lanceolati, subobtusiusculi. *Antherae* semiexsertae, 1.25 mm. longae. *Styli* rami

crassi, 0·5 mm. longi. *Achaenia* subcylindrica, circiter 8-costata, 2·5 mm. longa, glabra, apice annulo minute crenulato coronata.

SOUTH AFRICA.—Eastern Region: Tumbuland; Umtata River banks, 800 m., Jan., white stemmed, flowers yellow, *Pegler* 1601.

This is a very striking species, easily recognised by the dense, silky covering of hairs.

***Stilpnophytum*, Less.—*Clavis specierum*.**

*Folia* conferto-imbricata, anguste linearia,  
plerumque internodiis multo longiora;  
capitula 1–1·5 cm. diametro:—

Involucri bractee exteriores ceteris  
multo breviores, rigide paleaceae;  
capitula corymboso-glomerata:—

*Folia* longissima; capitula globoso-  
campanulata ... .. 1. *S. longifolium*.

*Folia* superiora inferioribus multo  
breviora; capitula elongato-cam-  
panulata ... .. 2. *S. linifolium*.

Involucri bractee exteriores ceteris  
circiter dimidio breviores, herbaceae;  
capitula solitaria ... .. 3. *S. inopinatum*.

*Folia* laxè disposita, late linearia, internodiis  
aequilonga vel leviter longiora; capitula  
vix 0·5 cm. diametro ... .. 4. *S. ocephalum*.

1. ***S. longifolium*, Less.** Syn. Comp. 264 (1832); DC. Prodr. vi. 92; Drège, *Zwei Pflanzengeogr. Docum.* 123.

*Tanacetum longifolium*, Thunb. Fl. Cap. ed. Schult. 642 (1823). *Stilpnophytum linifolium*, var. *longifolium*, Harv. in Harv. et Sond. Fl. Cap. iii. 187.

SOUTH AFRICA.—South Western Region: George; Kayman's River Gat, in the forest below, 160 m., Sept., *Drège*; west side of Kayman's River, Aug., *Burchell* 5803; in the forest near Touw River, Aug., *Burchell* 5721. Uniondale; Long Kloof, mt. sides near the west bank of Wagenbooms River, Mar., *Burchell* 4931. "Cape," *Mund*; *Hooker*; *Thunberg*.

2. ***S. linifolium*, Less.** Syn. Comp. 264 (1832); DC. Prodr. vi. 92; Drège, *Zwei Pflanzengeogr. Docum.* 74.

*Tanacetum linifolium*, Thunb. Fl. Cap. ed. Schult. 642 (1823). *Stilpnophytum linifolium*, var. *brevifolium*, Harv. in Harv. et Sond. Fl. Cap. iii. 187.

SOUTH AFRICA.—South Western Region: Clanwilliam; Ezels Bank, heights 930–1320 m., Dec., *Drège* b. Karroo Region: Ceres; Koude Bokkeveld, at Sandrivier, 1480 m., Jan., *Schlechter* 10109. "Cape," *Thunberg*.

I have not seen Drège's a specimen from near Onzer in the Uniondale Div. (*Drège* l.c. p. 122); from the locality it is probably *S. longifolium*.

### 3. *S. inopinatum*, *Hutchinson*, sp. nov.

*Suffrutex* superne ramosus, usque ad 3 dm. altus (vel. ultra?); caulis erectus, costatus, glaber. *Folia* inferiora imbricata, linearia, acuta, 4-5 cm. longa, 1-2 mm. lata, coriacea, prominenter 1-nervia, glabra, superiora breviora. *Capitula* ad apices ramorum solitaria, corymbosa, pauca, late campanulata, circiter 1.3 cm. diametro. *Involucrum* 1 cm. longum; bracteae circiter 3-seriatae, exteriores herbaceae, lineares, acutae, carinatae, 5-6 mm. longae, glabrae, intermediae et interiores late lineares, rigide et crasse paleaceae, circiter 1 cm. longae, 2.5-3 mm. latae, margine minute ciliolatae, glabrae. *Flores* numerosi. *Corollae* tubus 4.5 mm. longus, inferne anguste cylindricus et dense glanduloso-pubescent, apicem versus sensim ampliatus, glaber; lobi 5, lineari-lanceolati, subobtusiusculi, 1.25 mm. longi, glabri. *Achaenia* exteriora fertilia, 4.5-5 mm. longa, costata, nigrescentia, glabra, interiora vacua, anguste cylindrica, arcte costulata, glabra.

SOUTH AFRICA.—South Western Region: Swellendam; in the mountains near Swellendam, *Kennedy* 198.

This is a very distinct species and evidently very rare, for the collector found only a solitary specimen.

### 4. *S. oocephalum*, *DC.* Prodr. vi. 93 (1837); Harv. in Harv. et Sond. Fl. Cap. iii. 187.

SOUTH AFRICA.—South Western Region: Swellendam; on dry hills near the Breede River, Jan., *Burchell* 7462. *Caledon*; *Attaquas Kloof*, *Zeyher* 2822.

## XXXII.—DIAGNOSES AFRICANAE: LXVIII.

1591. *Salacia Gerrardii*, *Harv. ex Sprague* [Hippocrateaceae]; affinis *S. Kraussii*, *Hochst.*, a qua foliis oppositis cuspidatis, nervis lateralibus patulis venulis magis conspicuis differt.

*Folia* opposita, elliptico-oblonga vel ovata, basi rotundata vel obtusa, apice saepius conspicue sat abrupte cuspidata, 5-7.5 cm. longa, 2.8-4 cm. lata, obtusissime dentato-serrata; nervi laterales patuli, utrinsecus circiter 5, sat procul a margine arcuatim connexi, utrinque subtus magis conspicue; venulae supra obviae, subtus conspicuae; petioli 5-7 mm. longi. *Fasciculi* 2-pluriflori, interdum breviter pedunculati; pedicelli 0.8-1.2 cm. longi. *Sepala* transverse oblonga, ciliolata, duo exteriora 1.2 mm. longa, 1.7-2 mm. lata, tria exteriora vix longiora, 2.5-3 mm. lata. *Petala* patentia, suborbicularia, flavo-viridia (*Wood*) explanata 5-5.5 mm. diametro, exteriora subintegra, interiora lacerato-crenulata. *Discus* crassus, pallide viridis, 1.3 mm. altus, inferne quinquelobatus. *Stamina* intra discum inserta; filamenta deflexa, cuneata, 1.7 mm. longa, basi vix ultra 1 mm. lata, apice 0.4 mm. lata; antherae triangulari-reniformes, 0.6 mm. longae, 0.8 mm. latae, apice retusae, loculis inferne tertia parte liberae. *Ovarium* pyramidale, 1 mm. altum; stylus circiter 1 mm. longus; ovula pro loculo 2, superposita. *Bacca* (an matura) circiter



1.5 cm. diametro. *S. Gerrardii*, Harv. ex. J. M. Wood, Handb. Fl. Natal, 32 (1907), nomen. *Salacia* sp., J. M. Wood in Trans. S. Afr. Phil. Soc. vol. xviii. p. 139 (1908).

SOUTH AFRICA. Natal: without locality, *Gerrard* 1178; Nonoti, 150 m., *Wood* 8923; Mayville, *Wood* 13252; Inanda, *Wood* 567.

1592. *Cissus* (*Cyphostemma*) *flaviflora*, *Sprague* [Ampelidaceae]; affinis *C. cirrhosae*, Willd., a qua foliis trifoliolatis, foliolis apice rotundatis, indumento praesertim calycis brevioris facile distinguitur.

*Caulis* plus minusve anfractuosus, internodiis 3-7 cm. longis. *Folia* breviter petiolata, trifoliolata; petioli 3-4 mm. longi, ut petioluli densiuscule pilosi; petioluli 2-3 mm. longi; foliola obovata, apice rotundata, in basin cuneatim angustata vel basi obtusa, 2-4 cm. longa, 1.5-2.5 cm. lata, nonnulla usque ad 5.5 cm. longa, 3.8 cm. lata, grossiuscule acute crenato-dentata, supra glabra, subtus nervis crispule pubescentibus. *Cymae* tribrachiatæ, plerumque 5-6 cm. diametro; pedunculi 1-2.3 cm. longi, ut rhachis pedicellique dense crispule pubescentes; pedicelli 2 mm. longi. *Flores* tetrameri, flavi (*Wood*). *Alabastra* 2.5 mm. longa, medio constricta. *Calyx* breviter cupularis, 0.7 mm. altus, truncatus, ciliatus, extra parce pilosula. *Petala* ovato-oblonga, 3 mm. longa, basi 1.5-1.6 mm. lata, superne cucullata apice inflexa, extra crispule pubescentia. *Discus* annularis, 0.5 mm. altus, in lobos truncatos 0.7 mm. longos, basi 1 mm. latos apice 0.6 mm. latos productus. *Filamenta* 2.5 mm. longa, inferne supra disci lobos incurva, superne leviter recurva. *Ovarium* minute subappresse pilosum; stylus glaber in alabastro 1 mm. longus, ovarium versus valde incrassatus, post anthesin 1.5 mm. longus dimidio inferiore tumido superiore gracili; stigmata duo, minuta.

SOUTH AFRICA. Natal, *Gerrard* 572; near Durban, *J. M. Wood* 6392; Amanzimtoti, *J. M. Wood* 13249.

1593. *Lasiosiphon similis*, *C. H. Wright* in Dyer, Fl. Cap. vol. v. sect. 2, p. 73, anglice [Thymelaeaceae-Euthymelaeae]; species *L. linifolio*, Decne, affinis, petalis minutis dentiformibus differt.

*Caudex* lignosus, ramis pubescentibus 8 cm. altis gerens. *Folia* alterna, lanceolata, acuta, 1.2 cm. longa, 3 mm. lata, utrinque pilosa, costa conspicua, nervi laterales utrinque circiter 2; folia involucrales ovata, acuta, 5 mm. lata. *Flores* capitati, terminales. *Calyx* extra appresse sericeus; tubus 1.2 cm. longus, subtus leviter inflatus; lobi breviter elliptici, obtusi, 3 mm. longi, 2 mm. lati. *Petala* minuta, dentiformia. *Antherae* oblongae, obtusae, 1.5 mm. longae. *Ovarium* oblongum, glabrum; stylus filiformis, calycis tubo brevior; stigma capitatum.

SOUTH AFRICA. Transvaal; Warmbaths, *Miss Leendertz* 1314.

This species resembles *L. Kraussii*, Meisn., but differs in having sessile flower-heads and much smaller petals.

1594. **Loranthus (Erectilobi) Buntingii**, *Sprague*; a ceteris speciebus sectionis corolla in alabastro superne marginibus loborum reduplicatis anguste alata distinctus.

*Folia* ovata vel elliptica, saepe breviter acuminata, apice recurva, obtusa vel rotundata, basi cuneata usque rotundata, 9-14 cm. longa, 6-9.5 cm. lata, coriacea, glabra; nervi laterales utrinsecus 2-3, sat irregulares, procul a margine bis vel ter anastomosantes, utrinque subtus valde elevati; petioli crassi, 6-9 mm. longi. *Umbellae* 5-7-florae; pedunculus 3-4 mm. longus, fovea angulata terminatus; foveae pedicellorum septis tenuibus separatae; pedicelli 2-2.5 mm. longi; bractea ovato-cupularis, margine dorsali 1 mm. longo anguste truncato, margine ventrali 0.5 mm. longo. *Torus* cum calyce campanulatus, 3-3.5 mm. longus, glaber. *Calyx* patulus, 1.5 mm. longus, irregulariter fisso-lobatus. *Corolla* in toto 5-7 cm. longa, glabra, parte apicali in alabastro incrassata acuta 7 mm. longa anguste alata; tubus viridis, circiter 2 cm. unilateraliter fissus, ampulla basali ellipsoidea 6 mm. longa; lobi pallide rosei, lineari-lanceolati, acuti, 1.4-1.5 cm. longi, extra 2-6 mm. lati, intus 1-3 mm. lati. *Filamenta* vix supra corollae loborum basin inserta, involuta, sursum sensim angustata, intus leviter excavata, dente ventrali excluso 7 mm. longa, dente 0.8 mm. longo; antherae anguste oblongae, 3 mm. longae. *Stylus* parte incrassata 8-9 mm. longa, collo 2-5 mm. longo, parte superiore papilloso; stigma ellipsoideum, 0.8 mm. longum.

TROPICAL AFRICA. Liberia: Mount Barclay, *Bunting* 165 (Herb. Mus. Brit. et Kew).

1595. **Loranthus (Infundibuliformes) Copaiferae**, *Sprague*; ab *L. loandensi*, Engl. et Krause, cui facie persimilis, corolla longa basi non inflata recedit; a ceteris speciebus corolla basi non inflata praeditis foliis distinguitur.

*Ramuli* satis graciles, leviter flexuosi, circiter 2.5 mm. diametro 30 cm. infra apicem, conspicue nodosi, subcinerei, subtiliter densiuscule lenticellati, glabri, novelli angulati, striati, vetustiores rugosuli; internodia 0.5-2.5 cm. longa. *Folia* alterna, obovata vel elliptica, apice obtusissima vel rotundata, interdum minute apiculata, basi cuneata, 2-3.2 cm. longa, 1-1.7 cm. lata, tenuiter coriacea, glabra, e basi vel supra basin trinervia; nervi supra prominentes, subtus saepius inconspicui; petioli 1.5-2 mm. longi. *Flores* in pulvinis conspicuis axillaribus fasciculati; pedicelli 1-7 mm. longi, glabri; bractea oblique cupularis, dorsaliter extra cornutum in lobum ut videtur truncatum producta, margine dorsali 2 mm. longo, ventrali 1-3 mm. longo. *Torus* cum calyce cylindrico-campanulatus, 6 mm. longus, circiter 2.5 mm. diametro. *Calyx* truncatus, parce cililatus, ceterum glaber, 4 mm. longus. *Corolla* 6.2 cm. longa, glabra; tubus subcylindricus, sursum leviter ampliatus, circiter 4.7 cm. longus, circiter 2 cm. deorsum unilateraliter fissus; lobi erecti, e basi latiore lineares, acuti 1.4 cm. longi, infra insertionem staminum 1.8 mm. lati, medio circiter 1 mm. lati, extra inferne carinati, ceterum convexi. *Filamenta* erecta, sursum angustata, superne incrassata, 6.5 mm. longa, basi 1-3 mm. lati, apice 0.7 mm. lati, intus triente superiore excepta bicostata, inter costas conspicue sulcata; antherae

lineares, 3.7 mm. longae. *Discus* circiter 0.5 mm. altus, obtuse pentagonus. *Stylus* inferne leviter incrassatus, superne leviter metuliformis, collo 4 mm. longo; stigma ovoideum, 0.8 mm. longum.

TROPICAL AFRICA. Angola: Loanda; Guisua, on young copal trees (*Copaifera*), *Gossweiler* 14 (Herb. Mus. Brit.).

1596. *Loranthus usuiensis*, *Oliv.*, var. *Maitlandii*, *Sprague*. [Loranthaceae]; a typo foliis angustioribus necnon corolla forma differt.

*Folia* plus minusve anguste lanceolata, 6–12 cm. longa, 1.5–3.5 cm. lata, obtusa. *Corollae* ampulla basalis ellipsoidea.

TROPICAL AFRICA. Uganda, *Maitland* 119 (type); *Small* 1150.

The narrowly lanceolate leaves of *Maitland* 119 give the plant a very different appearance from typical *L. usuiensis*, so that at first sight it looks like a distinct species. *Small* 1150 has broader leaves, however, and though both specimens are more glabrescent than typical *usuiensis* and differ in the shape of the basal swelling of the corolla, it seems better to treat them as a variety of *L. usuiensis*. The shape of the basal swelling does not appear to be a very reliable character (see Fl. Trop. Afr. vol. vi. sect. 1, p. 304, note under *L. Braunii*).

1597. *Loranthus* (*Infundibuliformes*) *Crataevae*, *Sprague*; affinis *L. trinervio*, Engl., et *L. brunneo*, Engl.; ab illo ramulis non verrucosis, foliis floribusque multo majoribus, ab hoc corolla basi inconspicue ampliata tantum, parte incrassata apicali in alabastro costata apiculata differt.

*Ramuli* cinerei, laeves, circiter 3.5 mm. diametro 20 cm. infra apicem, vetustiores dense at inconspicue lenticellati. *Folia* subsessilia, elliptico-oblonga vel ovato-oblonga, basi obtusa 10–13 cm. longa, circiter 5 cm. lata, trinervia, nervis utrinque praecipue subtus prominentibus, nervis tertiariis extra nervos laterales utrinque circiter 9, initio patulis, sat procul a margine arcuato-anastomosantibus, areas subrhomboideas includentibus. *Umbellae* sessiles, pluriflorae; pedicelli 2.5 mm. longi, in basin ampliati; bractea cupularis, ciliolata, margine dorsali in lobum plus minusve producto 2–2.5 mm. longo extra plus minusve acute umbo-nate; margine ventrali 1–1.5 mm. longo. *Torus* cum calyce 4 mm. longus, cylindrico-campanulatus, extra glaber. *Calyx* 2.5 mm. longus, 5-dentatus, ciliolatus. *Corolla* in toto 5.2–5.8 cm. longa, rubra, in alabastro tubo inferne cylindrico superne leviter inflato, parte apicali incrassata 6 mm. longa, oblonga, costata, in basin leviter angustata, in apicem angustata, apiculata; tubus 1.3–1.4 cm. unilateraliter fissus; lobi in toto 1.25 cm. longi, parte inferiore lineari, parte superiore latiore lineari-lanceolata acuta intus strato duro praedita. *Filamenta* circiter 1 mm. supra basin corolla loborum inserta, deflexa, 6.5 mm. longa, intus bicostata, apice leviter incrassata, a medio in basin sensuum ampliata; antherae lineari-oblongae, truncatae, 2.7 mm. longae. *Stigma* ovoideum, fere 1 mm. longum.

TROPICAL AFRICA. Uganda: near the Semliki river, on *Crataeva*, *Bagshawe* 1303 (Herb. Mus. Brit.).



1598. *Loranthus* (*Infundibuliformes*) *toroensis*, *Sprague*; affinis *L. trinervio*, Engl., et *L. djurensi*, a quibus calyce duplo longiore recedit.

*Ramuli* sat graciles, 2·5 mm. diametro 20 cm. infra apicem, nodosi, densiuscule lenticellati, internodiis 0·5–2 cm. longis. *Folia* alterna, ovato-oblonga vel lanceolata, apice acuta, basi obtusa vel subcuneata, 3·5–6·5 cm. longa, 1·3–2·6 cm. lata, coriacea, glabra, trinervia, nervis utrinque praecipue supra elevatis, lateralibus paullum supra basin ortis, tertiariis inconspicuis; petioli 2–3 mm. longi. *Umbellae* sessiles, 2–3-florae; pedicelli brevissimi, vix ultra 0·5 mm. longi; bractea cupularis, postice in lobum anguste truncatum vel retusum bicuspidatum producta, sparse ciliolata, margine ventrali 2–2·5 mm. longo, margine dorsali 3 mm. longo extra plus minusve incrassato. *Torus* cum calyce subeylindricus, 5–5·5 mm. longus, extra glaber. *Calyx* subtruncatus, ciliolatus, inconspicue 5-dentatus, 3·5–4 mm. longus. *Corolla* in toto circiter 5 cm. longa; tubus sordide ruber, inferne leviter ampliatus demum angustatus, superne inflatus, unilateraliter 1–1·2 cm. fissus; lobi lutei, superne rubelli, subspatulato-lineares, 1·1–1·2 cm. longi, superne intus strato duro praediti. *Filamenta* 2–3 mm. supra basin corollae loborum inserta, deflexa, 5·5 mm. longa, sursum sensim angustata, intus inferne late sed inconspicue unicastata; antherae lineares, 3 mm. longae. *Stigma* ovoideum, 0·5 mm. longum.

TROPICAL AFRICA. Uganda: Toro; near the mouth of the Mpanga river, 900 m., on *Dombeya* sp. and *Acacia* sp., *Bagshawe* 1157 (type), 1237 (Herb. Mus. Brit.).

1599. *Encephalartos ferox*, *Bertol. f.* in Mem. Accad. Sci. Bologn. vol. iii. p. 264 (1851); Engl. Pflanzenw. Ost-Afr. C, p. 92 (1895); De Wild. Ic. Hort. Then. vol. iv. p. 181 (1904) [*Cycadaceae-Encephalartaeae*]; species *E. grato*, Prain et *E. Hildebrandtii*, A. Br. & Bouché, proxima; ab illo foliolis haud falcatis apice 2–4-spinescentibus, ab hoc foliolis basi valde inaequalibus seminibus atris nec cinnabarinis differt.

*Caudex* subglobosus circiter 6 dm. altus 3 dm. diametens. *Folia* ultra mediam partem 2·5 dm. lata; rhachis subeylindracea; foliola rigide coriacea, ovato-oblonga, apicem versus opposita, ceterum alterna, 10–15 cm. longa, 4·5–5 cm. lata, basi valde obliqua ibique margine superiore rotundata margine inferiore anguste cuneata, apice 2–4-spinescentia, margine utrinsecus grosse 2–4-dentata dentibus late triangularibus divergentibus spinescentibus. *Strobilus foemineus* subsessilis, oblongo-ellipsoideus, ruber. *Semina* atra.

TROPICAL AFRICA. Portuguese East Africa: Mozambique, *Fornasini*.

There is, unfortunately, little to add to the account of this species given by Professor Bertoloni in 1851; no specimens have been communicated since the original material was transmitted by Fornasini to Bologna sixty-five years ago. Through the kind efforts of Professor Schinz, of Zurich, and Professor Morini, of Bologna, our wish to learn what is to be known with regard to this

plant has been brought to the notice of Professor Antonio Bertoloni, of Zola Predosa, Bologna, and to his generosity we are indebted for a water-colour drawing of a portion of one of the two leaves on which his grandfather's account of the species was partly based. The opportunity of learning the precise shape of the leaflets of the plant met with by Fornasini makes it possible to compare more precisely the characters these afford with the corresponding characters in the remaining tropical African species of the genus and to supply a brief diagnosis, in which these characters are taken into account and are contrasted with the corresponding characters in the two tropical species to which *E. ferox* seems most nearly allied.

1600. **Encephalartos gratus**, Prain [Cycadaceae-Encephalartaeae]; species *E. Laurentiano*, De Wild. et *E. Woodii*, Sand. proxima, ab illo foliolis margine paucidentatis, ab hoc foliis hebetibus nec nitidis facillime distinguenda.

*Caudex* saepius brevissimus, globosus vel ellipsoideus, nonnunquam omnino hypogaeus, 3-4 dm. altus, 3 dm. diametens, rarius et praesertim in plantis masculis evolutus, 1.25 m. usque altus, 0.7 m. diametro, invicem squamis coriaceis et petiolorum basibus persistentibus imbricantibus tomento floccoso indutis obsitus. *Folia* 1.2-1.8 m. longa, ultra mediam partem 3 dm. lata, saturate viridia; petiolus rhachisque subcylindracei persistenter floccosi; foliola rigide coriacea, 30-70-juga, ovato-lanceolata, distincte falcata, 1.7-2.5 dm. longa, 3 cm. lata, basi valde obliqua ibique margine superiore late cuneata vel rotundata margine inferiore anguste cuneata, apice acute acuminata pungentia, per marginem inferiorem grosse 1-4-dentata, prope basin in margine superiore grosse 2-4-dentata, dentibus late triangularibus pungentibus subdivaricatis; casu foliola apice 2-spinosa vel in exemplis juvenilibus 4-5-spinosa. *Strobilus maris* pedunculatus, anguste ovatus vel cylindraceus, viride-lutescens, maculis rubris notatus, demum sordide brunneus, 3-4 dm. longus, 8-10 cm. latus; pedunculus 15-17 cm. longus; squamae patentes latiuscule obovato-deltoidaeae, parte fertilis 2 cm. longa, subquadrata, parte sterili apice rhomboidea 2 cm. lata, angulis lateralibus acutis caeteris obtusis, summo nonnunquam fere obsoleto, subumbonata. *Strobilus femineus* pedunculatus, viridi-lutescens, demum sordide brunescens, subcylindraceus vel anguste conicus, 5.5-6 dm. longus, 1.5-2 dm. latus; pedunculus 12-14 cm. longus; squamarum apex late rhomboidea, 5.5 cm. lata, 3 cm. alta, angulis lateralibus explanatis, caeteris obtusis, umbonata. *Semina* ellipsoidea vel ovoidea, plus minusve angulata, 3.5-4 cm. longa, 1.4-2 cm. lata; testa sordide cinnabarina.

TROPICAL AFRICA. Mozamb. Dist.: Nyasaland; south-eastern Mlangi, between the Puchila and the Ruo Rivers, 850 m., *Mahon*; lower slopes of Mt. Mlangi, 650-900 m., *Davy*; Zomba, cultivated, *McClounie*, *Davy*.

Specimens of a male example of this species were first sent to Kew by the late Mr. J. Mahon from Nyasaland in 1899. Living plants were sent to Kew by Mr. McClounie in 1903 [n. 197] and by Mr. Davy in 1914 [n. 417]. Copious notes, with material of the

flowers of both sexes, and a series of photographs, communicated by Mr. Davy in 1916, have rendered it possible to provide a complete description. It is, Mr. Davy informs us, most common in rocky ravines and along rocky river-banks, frequently in crevices between rocks without any apparent soil. It is usually subject to intense insolation and is often under water for a few hours in heavy floods. The area on the slopes of Mlangi to which it is limited has an annual rainfall of 1250–1750 mm., with a mean temperature for the year of between 95°–100° F. and a minimum temperature of 45°–50° F. Occasional specimens are found in savannah forest, and even in dense forest in rich soil. In savannah tracts the plants are usually defoliated by bush fires every year. The stem is generally short and globose, rarely rising more than a foot above the soil, often it is wholly underground. When growing in rich soil in shade the stems tend to become cylindric and may be up to 4 ft. high. This appears to occur most frequently with male plants. The pinnules of *E. gratus* in shape most resemble those of *E. Laurentianus*, De Wild., of Uganda and the Belgian Congo, among the tropical species of the genus. The scales of the male cones, however, are readily distinguishable from those of *E. Laurentianus* and approach those of *E. Barteri*, Carruth., of Upper Guinea, and of *E. Poggei*, Aschers., of the Belgian Congo, two species with foliage quite unlike that of *E. gratus*. The species with which *E. gratus* agrees most closely as regards the size, shape and marginal toothings of the pinnules is one from Zululand of which neither male nor female cones are yet known, first met with at Ngoya in 1895 and thence introduced to the Natal Botanic Garden in 1899 [*E. Woodii*, Sand. Gard. Chron. 1908, vol. xliii. pp. 257, 273 with suppl. fig.; J. M. Wood, l.c. p. 414; Kew Bulletin, 1914, p. 250, with fig. = *E. Altensteinii*, var. *bispinosa*, J. M. Wood, Rep. Bot. Gard. Natal, 1906–7, p. 8 with fig.]. When grown side by side *E. gratus* and *E. Woodii* are readily distinguishable; the foliage of *E. Woodii* is bright green and polished, that of *E. gratus* is dark green and dull. Another species with which *E. gratus* agrees as regards the shape of the base of the leaflets is *E. ferox*, Bertol. f., from Mozambique; in *E. ferox*, however, the leaflets are much shorter and wider and are not falcate, while the seeds are black, not vermilion. No economic properties are attributed to *E. gratus*, nor has Mr. Davy been able to ascertain that it has any definite vernacular name.

### XXXIII.—MISCELLANEOUS NOTES.

**The Botany of Tapu-ae-nuku, New Zealand.**—The following letter relating to an ascent of Mount Tapu-ae-nuku and the plants found thereon has been recently received from Mr. B. C. Aston, Government Chemist, New Zealand:—

“Since I last wrote you I have continued my explorations of the Inland Kaikoura Mountains which culminated in the ascent of Tapu-ae-nuku (9467 ft.), the highest mountain in the northern part of the South Island. Tapu-ae-nuku, or more properly Tapu-ae-nenuku, means the footsteps of ‘Nenuku,’ the



Maori God of the Rainbow; and the noise of avalanches of rocks, ice, snow, etc., and of thunder, was thought by the superstitious Maori to be the sound of his footsteps. The Pakeha (white man) has named the mountain Mt. Odin with some appropriateness, but this name only appears on a few maps, and never in settlers' conversation, by whom it is familiarly known as 'Tappy.' It is somewhat extraordinary that, although Marlborough was the first province to be botanised in New Zealand (viz., Cook, Banks and Solander in Queen Charlotte Sound in 1777, and the Owatese Valley which has had more visits paid to it by botanists than most other valleys in New Zealand), that Tapu-ae-nuku should never before have been ascended by a botanist. Perhaps it has a reputation for difficulty of ascent which is somewhat undeserved. With caution at the right time of the year there should be no difficulty in any active man reaching the summit from the 3000 ft. camp in the bed of the Dee River and returning in twelve hours. With three companions, Dr. I. Allan Thomson, Mr. H. Hamilton (both of the Dominion Museum Staff, Wellington), and Mr. A. F. O'Donoghue, the well-known amateur guide of Blenheim, I left the bivouac under an immense tabular rock in the Dee River bed at 3000 ft. about 6 a.m. on 29th February, 1916, and we returned to the same level in an adjoining valley about the same time in the evening. Our ascent was, of course, somewhat retarded by stoppages for specimen and note taking, but we reached the summit about 3 p.m., leaving about half an hour later. Our descent of 6000 ft. in three hours was facilitated by huge shingle slips upon which good time was made. The most important botanical discovery of the trip was the finding the 'vegetable sheep' (*Haastia pulvinaris*) growing at an altitude of 8500 ft.—a most extraordinary extension of its altitude, authorities giving its limit at 6500 ft. It has always been considered one of the most remarkable plants of the world, and the fact of its growing within 1000 ft. of the summit of Tapu-ae-nuku will add to the wonder with which it is regarded. In this highest station it is undoubtedly not a shingle plant, but a rock plant growing on the precipitous northern side of the twin peak of Tapu-ae-nuku. For a full description of the vegetative organs of this plant, see Laznievski ['Bietrage zur Biologie der Alpenpflanzen' Flora, 1896, 82 bd. heft iii.] and Low [Trans. N.Z. Inst., vol. 32, 1899, p. 150]. The plants of the shingle slips were very interesting and comprised *Stellaria Roughii*, *Ligusticum carnosulum*, *Lobelia Roughii*, *Poa sclerophylla*, and *Wahlenbergia cartilaginea*. Except the grass, they were invariably fleshy in character and slaty-coloured to harmonise with the shingly surroundings. Occasionally the grass would be found to revert to the usual green colour, and then it was badly eaten possibly by insects. It was only by the closest search that plants could be detected on these giant shingle slips which in places, stretched for 2000 ft. or more up the mountain, the protective coloration of the plants being well-nigh perfect.

"On the highest parts of the mountain several species new to the Province of Marlborough were collected. Perhaps the feature which will most appeal to future botanical visitors to

this wild country, which can at present only be approached by means of a bridle track—there being no road—are the wonderful wall gardens of the Amuri limestone and banded flint gorges and canyons through which the rivers of the high range have cut their courses. To understand the physiography of this area one should consult Dr. C. A. Cotton's paper in the *Geographical Journal*, vol. 42, No. 3, Sept., 1913, 'The Physiography of the Middle Clarence Valley, N.Z.' [On p. 234, fig. 7, is a photo of Tapu-ae-nuku, which shows in the centre the spur by which we ascended to the summit, also the immense shingle beds below the snow; it also shows the twin peak a little below the summit on which the *Haastia* grows to its summit practically.]

"In places in these calcareous cliff faces, where the dip of the strata is such as to afford a lodgment to plants, the faces are dotted all over from the river bed to the top, some 200-400 ft., with species many of which are peculiar to this north-east corner of the South Island and which plant lovers would esteem as some of the most beautiful of flowering plants. Prominent are *Olearia insignis*, *Celmisia Munroi*, *Ranunculus Munroi*, *Clematis afoliata*, *Ligusticum filiformis*, *Notospartium torulosum*, *Angelica Gingidium*, *Olearia coriacea*, *Senecio geminatus*, *Wahlenbergia saxicola* var., *Veronica Hulkeana*, *Gentiana Astoni*, *Veronica leiophylla*, *Carmichaelia Munroi*, *Leptospermum scoparium* var.

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**Echium Pininana.**—Several species of *Echium* peculiar to the Canary Islands are of arboreal habit. Dr. G. V. Perez informs us that he has growing in his garden at Villa Orotava, Tenerife, 1200 ft. above sea-level, a plant of *Echium Pininana*, Webb, 21½ ft. high, which is probably a record for the genus. De Coincey (Bull. Herb. Boiss. ser. 2, vol. iii. p. 272), describes *E. giganteum*, Linn. f., as attaining a height of 13 ft., whilst *E. Pininana* in the Temperate House at Kew is now 11½ ft.

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**Mangrove Wood.**—Several attempts have been made recently to induce railway companies to use the wood of the mangrove (*Rhizophora Mangle*, L.), for sleepers, but as the mangrove is usually a small tree, it is likely that greater success would attend the introduction of the wood if it could be utilised for some purpose where timber of smaller dimensions is in demand. Mangrove wood might be used successfully for pit props and other mine timber since the wood is both strong and durable; it is, however, heavy, a disadvantage where freight is concerned. As the sleepers in question were shipped from West Africa, it might be possible to import a cargo of the smaller-sized wood cut to suitable lengths for trial for pit props. The weight of the wood appears to range between 48 lbs. and 65 lbs. a cubic foot.

W. D.